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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,312	06/05/2001	Masumi Oshima	1975.1038	5718

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EXAMINER
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DUDNIKOV, VADIM

ART UNIT	PAPER NUMBER
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3663

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11/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/873,312	<b>Applicant(s)</b> OSHIMA ET AL.	
	<b>Examiner</b> Vadim Dudnikov	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 3/16/07.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/1/05</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

A new examiner has assumed responsibility for the examination of the application.

#### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 17, 2007 has been entered.

#### ***Response to Arguments***

2. Applicant's arguments pages 3-5 filed 09/17/2007 have been fully considered but they are not in every respect persuasive. Those objections and rejections that have been overcome are omitted from the present Office Action and are considered withdrawn. Claim 4 has been amended.

Claim Rejections under 35 U.S.C. § 112 has been withdrawn.

3. With regard to the Rejection under 35 U.S.C. § 103, Cole et al., disclose a method for detection of energy of simultaneously emitted gamma photons (said gamma photons can be emitted by one radionuclide as in application, or by several different

radionuclides). A detection system disclosed by Cole (presented in Figs. 1, 2, 3, 5) is capable to practice a method of high-sensitivity analysis of nuclides by multiple gamma-ray detection disclosed in application. The gamma-ray spectrums presented in Figs. 4A and 4B are rows of matrix disclosed in application.

Limitations of claim 4 are disclosed by Cole et. al., as well known in the art of radionuclides identification (see explanation in Fig. 1, 2, 3, 4A, 4B, 5, 6; column 6, lines 5+). Coincidence detection of two or more gamma photons is also disclosed by PR. As long as multiple gamma emission that one simultaneously detected from at least one nuclide the limitations that forms the reason of this traverse is met.

The claim would have been obvious because a person of ordinary skill has good reason to pursue the known options within his her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. The alleged distinction between the claimed "method for detection of energy of simultaneously emitted gamma photons" of the invention and cited prior art does not correspond to any non-obvious claimed limitation. Said Applicant's arguments are not persuasive.

Rejection of amended claims established in light of further consideration and search of the prior Art. See rejections underneath.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 4 and 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al. (5,378,895) in view of Press Releases (1999/12/16 "High-Sensitivity/High-Precision Quantification Method of Trace Elements Developed by JAERI". 1999), (PR after here). Regarding claim 4, Cole et al. disclose: a method of sensitive, qualitative and quantitative analysis of radionuclides in a sample by multiple gamma-ray detection (Figs. 1-6; gamma-gamma pulses, column 5, lines 5+), which comprises: providing a sample comprising radionuclides (24 in Figs. 2, 3, 5; column 6, lines 5+); detecting simultaneously (abstract; claim 9 b, two or more gamma-ray pulses) a pair of gamma-rays emitted concurrently from any of the radionuclides in the sample with a multiple gamma-ray detector assembly comprising a plurality of gamma-ray detectors to determine energies of each of the concurrent pairs of gamma-rays (16 in Figs. 1, 2, 3, 5; Fig. 6; column 6, lines 5+; column 7, lines 42+) constructing a two-dimensional matrix

having two axes by specifying the energy of one gamma-ray of the concurrent pair of gamma-rays on one of the two axes and the energy of the other gamma-ray on the other axis and by plotting on another axis vertical to the two axes count (intensity) of each gamma-ray combination at a coordinate specified by the two gamma-ray energies on the matrix (spectrums presented in Figs. 4A and 4B are represent two rows of matrix related to different energy of detector triggering gamma photons and simultaneously detected second photons).

Cole et al, do not necessary disclose directly the limitation: "specifying each radionuclide from the position of a peak on the matrix by referring to known data of gamma-rays emitted from each radionuclide; comparing the peak for each radionuclide with a standard radiation source having known energy and intensity to measure the content of each radionuclide in the sample".

However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include said limitation in view of PR drawn to the method for trace element detecting, hence analogous art, who teach "In this method, a specimen is irradiated with thermal neutrons and radioactivated, then emitted multiple  $\gamma$ -rays are measured simultaneously with a number of  $\gamma$ -ray detectors, and the obtained two-dimensional matrix is analyzed", (page 1, lines 5+). It is obvious for ordinary skilled in the art of elements identification in time of invention, that two energies of simultaneously detected photons represent element of matrix as any other pair of connected elements and this matrix element is a characteristic of radionuclide with a cascade gamma transitions.

Motivation for said inclusion derives from Cole who teaches: "The method can also be used to assay radioactive waste which contains fissile material, even in the presence of a high background radiation field", Abstract, column 5, lines 8+).

A detection system disclosed by Cole (presented in Figs. 1, 2, 3, 5) is capable to practice a method of high sensitive analysis of nuclides by multiple gamma-ray detection disclosed in application. The gamma-ray spectrums presented in Figs. 4A and 4B are representing the rows of matrix disclosed in application.

Limitations of claim 4 are disclosed by Cole et. al., as well known in the art of radionuclides identification (see explanation in Fig. 1, 2, 3, 4A, 4B, 5, 6; column 6, lines 5+).

The claim would have been obvious because a person of ordinary skill has good reason to pursue the known options within his her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. The alleged distinction between the claimed "method for detection of energy of simultaneously emitted gamma photons" of the invention and cited prior art does not correspond to any non-obvious claimed limitation.

On claim 5, Cole et al., disclose: the sample has been produced by a nuclear reaction induced with neutrons or gamma-rays (The system is used active (with an external neutron source) mode, Abstract).

### ***Conclusion***

7. The following references are cited for disclosing related limitations of the applicant's claimed and disclosed invention:

Shao et al. (US Patent No. 5,999,588);

Web site: A gamma-ray detector array, GEMINI, constructed in tandem accelerator facility in the ... The multiple gamma-ray detection method

<http://inisjp.tokai-sc.jaea.go.jp/ACT00E/06/0602.htm> - 7k est-;

Geus et al. U.S. Patent # 6,195, 413 B1

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vadim Dudnikov whose telephone number is 571-270-1325. The examiner can normally be reached on 8:00 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached, Mon-Fri 7:00am-4:00 pm, at telephone number 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.



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Patent Examiner.

VD

Vadim Dudnikov

November 18, 2007.

Primary Examiner:  
 (11/24/07)  
Johannes Mondt  
(TC 3600, AU 3663)